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ABSTRACT

The public high school and three private high schools in Chuuk State (formerly called Truk), Federated States of Micronesia (FSM), are located on the main island of Weno. This report documents the present state of secondary and postsecondary mathematics education in Chuuk State. The information is primarily based on interviews with administrators and mathematics teachers at both the secondary and postsecondary levels in Chuuk State. It is reported that the quality of mathematics education varies from school to school ranging from an evolving system at the public high school to high quality and a commitment to excellence at Xavier High School, one of two Catholic high schools on the island. Except for these two catholic schools, there appears to be a shortage of mathematics teachers at the secondary level. The associate degree and three of the four certificate programs offered by the extension center of the College of Micronesia (COM) specify mathematics requirements. However, data indicate that COM's Chuuk State campus has difficulty in recruiting and retaining mathematics instructors. It was concluded that there is a shortage of mathematics teachers both at the secondary and postsecondary level in Chuuk State. (JRH)

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SECONDARY AND POSTSECONDARY MATH EDUCATION IN CHUUK STATE, FEDERATED STATES OF MICRONESIA

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SECONDARY AND POSTSECONDARY MATH EDUCATION IN CHUUK STATE, FEDERATED STATES OF MICRONESIA

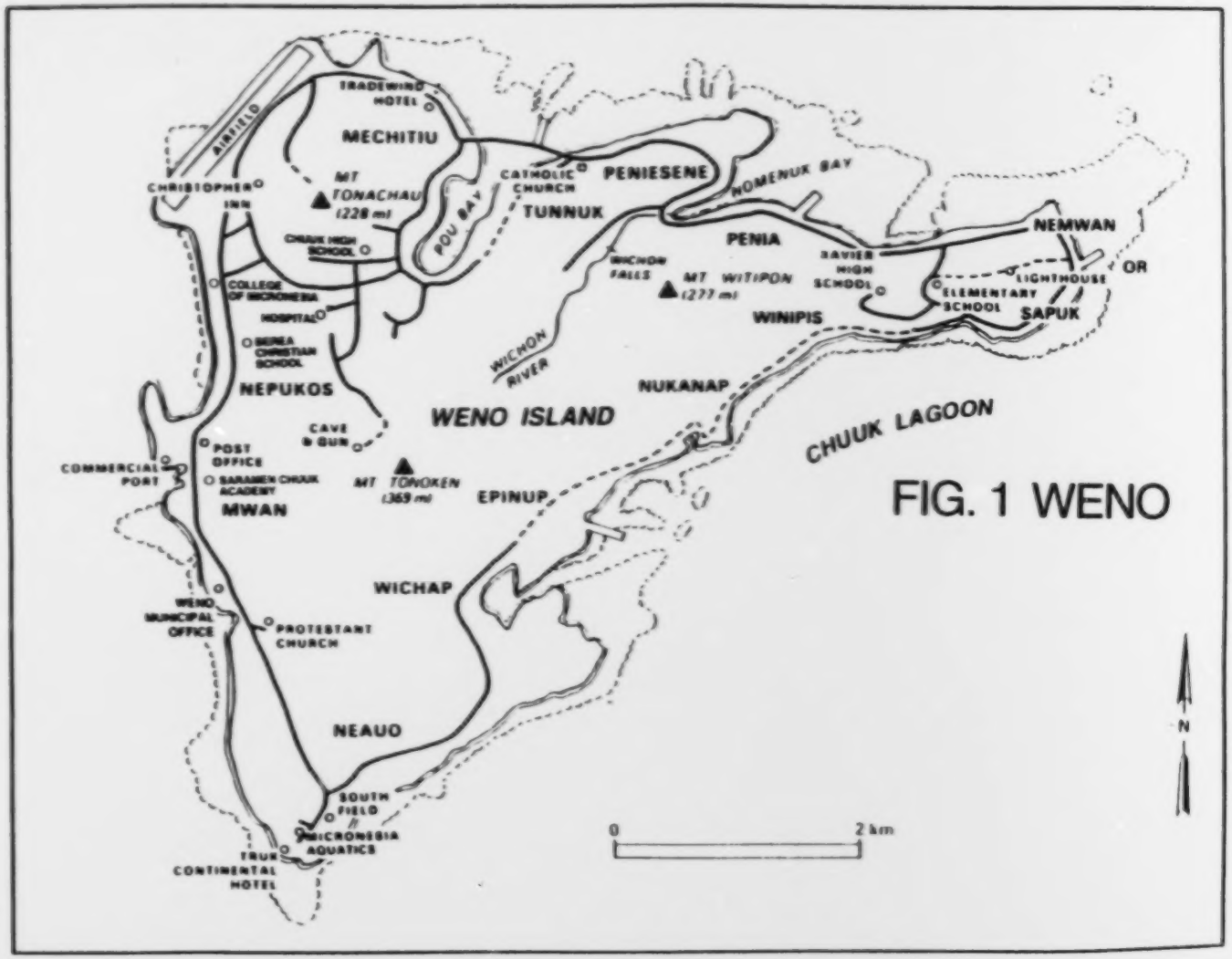
Abstract

The public high school and three private high schools in Chuuk State (formerly called Truk), Federated States of Micronesia (FSM) are located on the main island of Weno. The quality of mathematics education varies from school to school ranging from an evolving system at the public high school to high quality and a commitment to excellence at Xavier High School, one of two Catholic high schools on-island. Except for these two Catholic schools, there appears to be a shortage of math teachers at the secondary level. The College of Micronesia (COM) has an extension center or state campus on Weno. The one associate degree and three of the four certificate programs that are offered specify mathematics requirements. COM's Chuuk State campus has difficulty in recruiting and retaining mathematics instructors. Note that the information for this manuscript is primarily based on interviews with administrators and mathematics teachers at both the secondary and postsecondary levels in Chuuk State.

Chuuk High School

Chuuk State's only public high school is located in the northwestern part of Weno at the foot of Mount Tonachau (see figure 1). It has an enrollment of about 1,200 students, the majority of whom completed junior high school on Weno while some students completed junior high school on the islands of Tonoas and Tol which are both located within Chuuk Lagoon (see figure 2). Students also attend junior high school on Onoun and Puluwat both located in the Western Islands, and on Satawan which is located in the Lower Mortlocks (see figure 3). The junior high schools on Tonoas and Tol as well as those located on the outer islands were established with the help of the U.S. Peace Corps. School attendance is mandatory in Chuuk. However, due to a paucity of resources, entrance to Chuuk High School is limited to students who score well on a high school admission test. Eighty to 90 percent of its students graduate and only 10 to 20 per cent go on to college.

The high school math curriculum is specified by Chuuk State's Department of Education (DOE) in a Mathematics Curriculum Guide issued in 1993. The high school mathematics curriculum includes: general math and pre-algebra; elementary algebra; intermediate algebra; and plane geometry. The above requirements are consistent with the national math standards promulgated by the FSM DOE. Of 61 high school faculty members, six teach mathematics. This number is insufficient to handle the mathematics course load.


TRADEWIND HOTEL
AIRFIELD
MECHITIU
MT TONACHAU (228 m)
CHRISTOPHER INN
CHUUK HIGH SCHOOL
COLLEGE OF MICRONESIA
HOSPITAL
BEREA CHRISTIAN SCHOOL
NEPUKOS
CAVE & GUN
POST OFFICE
COMMERCIAL PORT
SARAMEN CHUUK ACADEMY
MWAN
MT TONOKEN (369 m)
EPINUP
WICHAP
WENO MUNICIPAL OFFICE
PROTESTANT CHURCH
NEAUO
SOUTH FIELD
MICRONESIA AQUATICS
TRUK CONTINENTAL HOTEL
WENO ISLAND
CATHOLIC CHURCH
PENIESENE
POU BAY
TUNNUK
HOMENUX BAY
PENIA
NEMWAN
WICHON FALLS
MT WITIPON (277 m)
XAVIER HIGH SCHOOL
LIGHTHOUSE
ELEMENTARY SCHOOL
SAPUK
WINIPIS
WICHON RIVER
NUKANAP
CHUUK LAGOON
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0
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FIG. 1 WENO

FIG. 2 CHUUK LAGOON

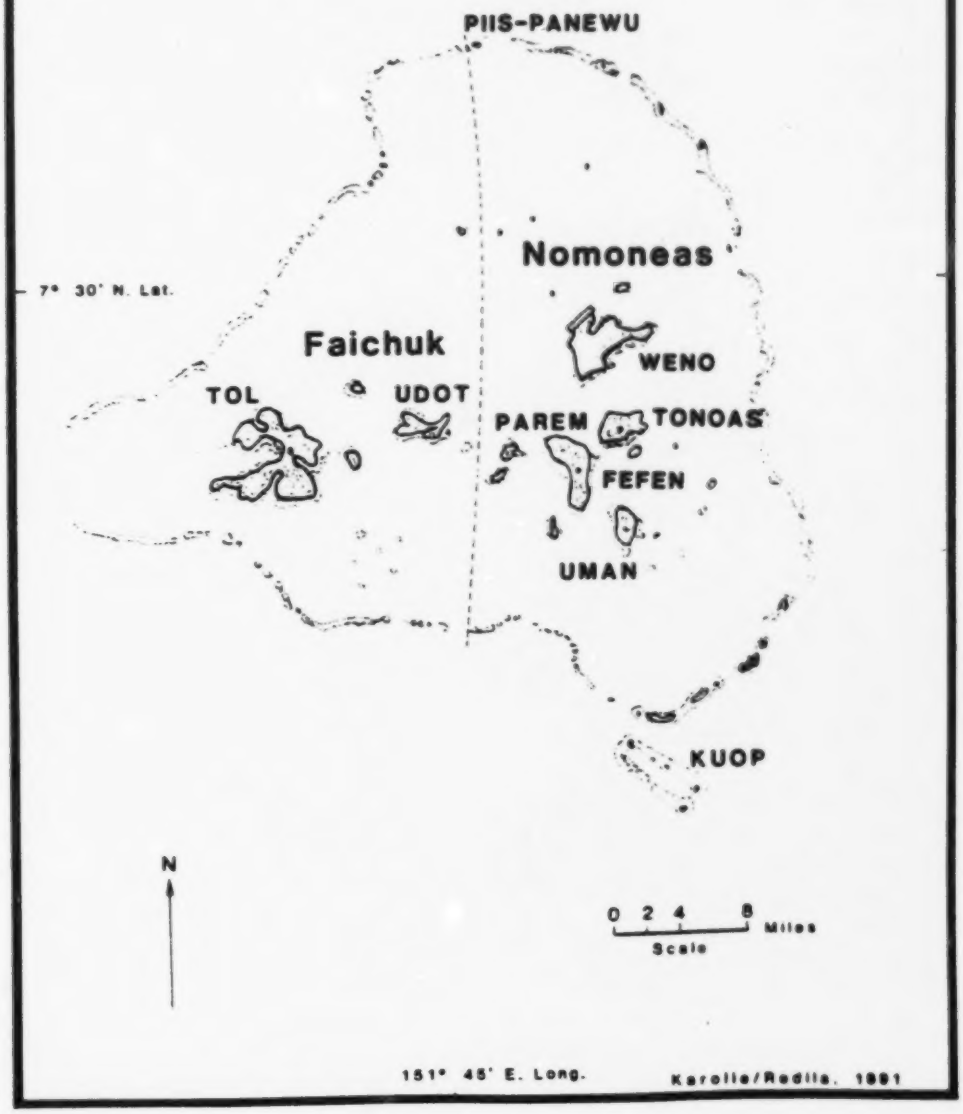
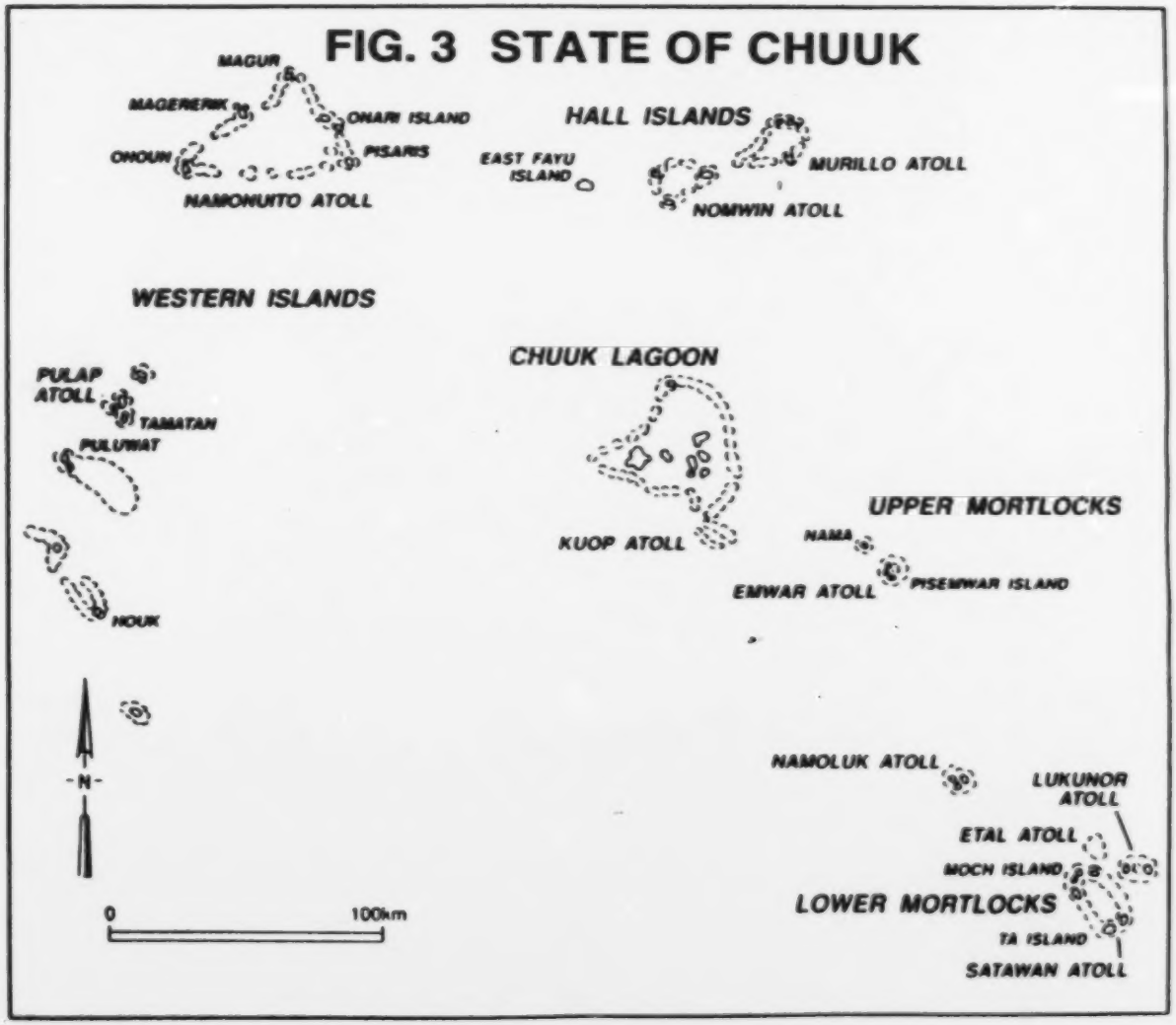


FIG. 3 STATE OF CHUUK



To upgrade its math and science programs, Chuuk State's DOE has applied for and has been awarded "School Visions and Dream Grants" by the Pacific Region Educational Laboratory's (PREL) Pacific Mathematics and Science Regional Consortium, an Eisenhower regional consortium. DOE received grants totaling $50,000 during the academic years 1993-1994 and 1994-1995 which were disbursed to eleven public schools and three private schools (two high schools and one elementary school). Approximately $16,000 was used for math or math-related projects. Projects for students included: learning basic mathematics skills; learning math through agriculture; and the metric system. The funds were also used for training and development of math teachers.

Chuuk State's DOE is concerned that public high school graduates score low on math placement exams administered by the College of Micronesia and by the University of Guam. To help correct this deficiency, DOE engaged the services of a Consultant from the University of Guam through PREL to conduct a workshop on algebra methods in the summer of 1995. The workshop was open to all math teachers (grades 5 to 12) and was designed to help re-align the public school math program with the Pacific Standards for Excellence in Mathematics being developed through PREL. Workshop materials were based on Curriculum and Evaluation Standards for School Mathematics promulgated by the National Council of Teachers of Mathematics.

Xavier High School

Established in 1952, Xavier High School is one of two Catholic high schools on Weno and is operated by the Jesuits. It is located on the northeastern end of the island (see figure 1) and served as a fortified radio communications center for Japan's Imperial Navy in the 1940s. Xavier is the better known of the two Catholic schools and is considered a prestigious four-year high school, attended by students from all corners of Micronesia. The student body numbers about 170 and approximately 85 per cent of Xavier's graduates pursue a college degree in Australia, Fiji, Guam, Hawaii and of course, at the College of Micronesia. Despite its success, there appears to be some concern regarding the performance of its graduates on math placement tests. Measures for correcting this deficiency are being explored.

The mathematics curriculum at Xavier High School is comparable to any accredited curriculum at any high school in Guam, Hawaii, or California. Courses offered include: elementary algebra (9th grade); plane geometry (10th grade); intermediate algebra (11th grade); and calculus (12th grade). Xavier was accredited by the Western Association of Schools and Colleges in 1994.

Of Xavier's fifteen faculty members, four are mathematics teachers. The faculty is partially staffed by Jesuit International Volunteers (JIV), a lay Christian service organization. Serving two-year assignments, JIV members are typically young college graduates (from the continental US) who are dedicated to working with the economically poor of other cultures in developing countries. Two of Xavier's math teachers were recruited from JIV's ranks.

Saramen Chuuk Academy

Saramen Chuuk Academy, the second Catholic high school, was established by the Vicariate of Chuuk in 1990 and is located on the western side of Weno near the commercial port, adjacent to the Family Meipin Catholic Church (see figure 1). While Xavier's students primarily come from out-of-state, Saramen's high schoolers hail from Chuuk State. About 220 students attend Saramen and approximately 85 percent of its graduates go on to college.

Saramen's mathematics curriculum is almost identical to that of Xavier's. That is, it offers: elementary algebra (9th grade); plane geometry (10th grade); intermediate algebra and trigonometry (11th grade); and pre-calculus (12th grade). Business math is offered as an elective in lieu of pre-calculus during the senior year. Students in this class not only learn about balancing ledgers but also gain practical experience in running a business as they assume responsibility for all profits (or losses) accrued by the school store.

Of Saramen's fourteen faculty members, four teach mathematics. Saramen is also partially staffed by the JIV organization and one of its math teachers is a JIV member. The school's faculty are concerned regarding incoming students' preparation for elementary algebra. Consequently, Saramen has implemented a developmental math course that emphasizes the math fundamentals a student is expected to know before taking a course in elementary algebra. Freshman students are required to take this course during the summer (5-week session, five days per week, one hour per day) just prior to enrolling for their first fall semester at Saramen.

Berea Christian School

Since 1980, the Evangelical Churches of Chuuk have been operating a private school (kindergarten to grade 12) on the western side of Weno, about a block south of the FSM Supreme Court Building (see figure 1). The total student body numbers about 500, 200 of whom are high school students. It is estimated that 25 to 30 per cent of Berea's graduates further their education at the College of Micronesia or at colleges or universities in Guam, Hawaii, and the continental United States.

Berea's mathematics curriculum at the high school level includes: general mathematics; elementary algebra; and intermediate algebra. Plane geometry is offered whenever there is sufficient student demand. The school administration desires to upgrade its high school mathematics curriculum to better prepare its graduates for mathematics at the postsecondary level. Of 41 faculty and staff members, only two teach high school math courses. Berea has had difficulty in recruiting high school math teachers.

College of Micronesia

The College of Micronesia (COM) opened an extension center or state campus on Weno in August 1993. This extension center is one of four state campuses with the other three being located in Kosrae, Pohnpei, and Yap. The state campus in Pohnpei doubles as the main or national campus. The Chuuk extension center is the only postsecondary institution in Chuuk State and is located on the western side of the island across the street from the FSM Supreme Court Building (see figure 1). This center has approximately 500 students (both full time and part time).

The following academic programs are offered:

Associate of Science, Elementary Teacher Education

Accounting Certificate

Business Management Certificate

General Studies Certificate

Preschool Teacher Certificate

The mathematics curriculum supports the above academic programs. Students working toward an associate degree must take elementary algebra as well as a course in math for elementary teachers. Math requirements for the certificate programs are: business math for the accounting certificate; business math, remedial math and general math for the business management certificate; and general math and elementary algebra for the general studies certificate. College algebra was once part of the general studies program but has been dropped. Note that students in the business management program are required to take the remedial math course as part of the business management curriculum. All students who do not receive passing scores on COM's math placement test are also required to enroll in the remedial math course. The preschool teacher certificate program does not have any math requirements.

The Chuuk extension center has eleven full time faculty members who are supplemented by three U.S. Peace Corps volunteers and a volunteer from the Japanese Peace Corps. Its lone mathematics instructor recently won a seat in the Chuuk State Legislature and hence, resigned from his faculty position. Consequently, at the time of this writing (July 1995), mathematics courses were being taught by one of the U.S. Peace Corps volunteers and the volunteer

from the Japanese Peace Corps. COM is having difficulty in recruiting math faculty for its Chuuk State campus.

Conclusion

Except for the two Catholic high schools, there is a shortage of mathematics teachers in Chuuk State at the secondary level. At the postsecondary level, COM's extension center also has a shortage of mathematics instructors.

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Julie Long (JIV)
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Sanfio Sony
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Maps of Weno and Chuuk State from David Stanley, **Miconesia Handbook** (Chico, CA: Moon Publications, Inc., 1992).

Map of Chuuk Lagoon from Bruce G. Karolle, **Atlas of Micronesia** (Honolulu: Bess Press, 2nd ed.).